



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,875	09/29/2003	David Allen Kastrup	13DV-13988-2	2342
7590	03/21/2006		EXAMINER KIM, TAE JUN	
John S. Beulick Armstrong Teasdale LLP Suite 2600 One Metropolitan Square St. Louis, MO 63102			ART UNIT	PAPER NUMBER
			3746	
DATE MAILED: 03/21/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/673,875

Applicant(s)

KASTRUP ET AL.

Examiner

Ted Kim

Art Unit

3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02/06/2006 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 8-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Freidauer et al (6,502,400) and under 35 USC 102(b) as being anticipated by its WO equivalent WO 200190652. For conciseness all citations are from the US reference. Note that the claims are product by process claims and that the structure of the fixture and the steps it performs has been given little patentable weight. It is noted that the patentability of these

claims is determined on the basis of the product formed and not the method by which it is produced *Ex parte Junger, 18 USPQ2d 1796 (BPAI 1991)*. Freidauer et al teach a combustor for a gas turbine engine, said combustor comprising a spectacle (or dome) plate, and a plurality of swirlers attached to said spectacle (or dome) plate wherein to assemble said combustor, an assembly fixture is coupled to at least one said swirler; each respective assembly fixture is removably coupled to the spectacle (or dome) plate such that each said respective swirler is aligned with respect to said spectacle plate, wherein each respective assembly fixture includes a plurality of arms that are sized to receive each said respective swirler and an attachment portion that is configured to couple to said spectacle plate; each respective assembly fixture is then uncoupled from each said spectacle plate after each said swirler is attached to said spectacle plate; a plurality of deflector plates comprising an opening extending therethrough, wherein said plurality of deflector plates to said spectacle plate such that each said deflector plate opening substantially concentrically aligned with each respective said swirler; each said swirler is welded to said spectacle plate prior to uncoupling each respective assembly fixture; said deflector plates comprise a first deflector plate positioned against said spectacle plate; a second deflector plates positioned against said spectacle plate and circumferentially adjacent said first deflector plate; and an alignment fixture removably coupled between said first and second deflector plates to maintain a position of said first and second deflector plates with respect to said spectacle plate; each said deflector plate brazed to said spectacle plate, said each alignment fixture is removed after said first and second

Art Unit: 3746

deflector plates are brazed to said spectacle plate. The use of the fixture and the alignment are taught by Freidauer et al in the background of the invention.

“(2) This invention relates generally to gas turbine engines and more particularly to combustor dome assemblies used in such engines.

(3) A gas turbine engine includes a compressor that provides pressurized air to a combustor wherein the air is mixed with fuel and burned for generating hot combustion gases. These gases flow downstream to one or more turbines that extract energy therefrom to power the compressor and provide useful work such as powering an aircraft in flight. Combustors used in aircraft engines typically include inner and outer combustion liners joined at their upstream ends to a dome assembly. The dome assembly includes an annular spectacle plate and a plurality of circumferentially spaced swirler assemblies mounted therein for introducing the fuel/air mixture to the combustion chamber. Each swirler assembly has a deflector extending downstream therefrom for preventing excessive dispersion of the fuel/air mixture and shielding the spectacle plate from the hot combustion gases of the combustion chamber.

(4) Typically, the swirler assemblies, deflectors and spectacle plate are joined together by a technique such as **brazing**. In one conventional dome assembly, the outer diameter of the swirler assembly is brazed into an opening in the spectacle plate in one operation, and the deflector is brazed into the inner diameter of the swirler assembly in another operation. The manufacture of such a dome assembly requires several time consuming procedures, utilizes multiple fixtures and many expensive materials, and is relatively labor intensive. For instance, in the first operation, the swirler assembly is fixtured to the spectacle plate using a **special fixture** so that the swirler assembly can be tack **welded** to the spectacle plate. The tack weld fixture is then removed and a stop-off paste is applied to the spectacle plate. Next, a braze alloy paste is placed in the gap between the swirler assembly and the spectacle plate opening. The assembly is then heated to a temperature exceeding the braze alloy melting point such that the braze alloy melts and fills the gap. The assembly is then allowed to cool so that the braze alloy solidifies and joins the swirler assembly to the spectacle plate.

(5) In the second operation, stop-off material and two forms of braze alloy (sinter braze tape and braze rope) are applied to the deflector. The deflector is then **fixtured** into the swirler assembly/spectacle plate sub-assembly using another fixture. Milk of magnesia is applied to this fixture to prevent seizing during subsequent heating. This assembly is then heated to a temperature exceeding the braze alloy melting point such that the braze alloy melts and fills the swirler assembly/deflector interface. The assembly is then allowed to cool so that the braze alloy solidifies and joins the deflector to the swirler assembly. **The fixture is then removed.** (col. 1, lines 11 - 62)”

4. Claims 8-12 are rejected under 35 U.S.C. 102(b) as being anticipated by

Halila (5,353,587). Halila teaches a combustor for a gas turbine engine, said

combustor comprising a spectacle (or dome) plate 16, 18, and a plurality of swirlers attached to said spectacle (or dome) plate wherein to assemble said combustor, an assembly fixture is coupled to at least one said swirler; each respective assembly fixture is removably coupled to the spectacle (or dome) plate such that each said respective swirler 26 is aligned with respect to said spectacle plate, wherein each respective assembly fixture includes a plurality of arms that are sized to receive each said respective swirler and an attachment portion that is configured to couple to said spectacle plate; each respective assembly fixture is then uncoupled from each said spectacle plate after each said swirler is attached to said spectacle plate; a plurality of deflector plates (unlabeled but to the right of 16 in the Figures) comprising an opening extending therethrough, wherein to assemble said combustor, said plurality of deflector plates are each attached to said spectacle plate such that each said deflector plate opening substantially concentrically aligned with each respective said swirler; each said swirler is welded to said spectacle plate prior to uncoupling each respective assembly fixture; said deflector plates comprise a first deflector plate positioned against said spectacle plate; a second deflector plates positioned against said spectacle plate and circumferentially adjacent said first deflector plate; and an alignment fixture removably coupled between said first and second deflector plates to maintain a position of said first and second deflector plates with respect to said spectacle plate; each said deflector plate brazed to said spectacle plate, said each alignment

fixture is removed after said first and second deflector plates are brazed to said spectacle plate. Note that the claims are product by process claims and that the structure of the fixture and the steps it performs has been given little patentable weight. It is noted that the patentability of these claims is determined on the basis of the product formed and not the method by which it is produced *Ex parte Junger*, 18 USPQ2d 1796 (BPAI 1991).

5. Claims 8-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Koshoffer et al (5,239,832). Koshoffer a combustor for a gas turbine engine, said combustor comprising a spectacle (or dome) plate 28, and a plurality of swirlers 48 attached to said spectacle (or dome) plate wherein to assemble said combustor, an assembly fixture is coupled to at least one said swirler; each respective assembly fixture is removably coupled to the spectacle (or dome) plate such that each said respective swirler is aligned with respect to said spectacle plate, wherein each respective assembly fixture includes a plurality of arms that are sized to receive each said respective swirler and an attachment portion that is configured to couple to said spectacle plate; each respective assembly fixture is then uncoupled from each said spectacle plate after each said swirler is attached to said spectacle plate; a plurality of deflector plates 44 or 42 comprising an opening extending therethrough, wherein said plurality of deflector plates to said spectacle plate such that each said deflector plate opening substantially concentrically aligned with each respective said swirler; each said swirler is welded to said spectacle plate prior to uncoupling each respective assembly fixture; said deflector plates comprise a first

deflector plate positioned against said spectacle plate; a second deflector plates positioned against said spectacle plate and circumferentially adjacent said first deflector plate; and an alignment fixture removably coupled between said first and second deflector plates to maintain a position of said first and second deflector plates with respect to said spectacle plate; each said deflector plate brazed to said spectacle plate, said each alignment fixture is removed after said first and second deflector plates are brazed to said spectacle plate. Note that the claims are product by process claims and that the structure of the fixture and the steps it performs has been given little patentable weight. It is noted that the patentability of these claims is determined on the basis of the product formed and not the method by which it is produced *Ex parte Junger, 18 USPQ2d 1796 (BPAI 1991)*.

6. Claims 8-12 are rejected under 35 U.S.C. 102(a or e) as being anticipated by Thompson et al (6,212,870). Thompson et al teach a combustor for a gas turbine engine, said combustor comprising a spectacle (or dome) plate 36, and a plurality of swirlers 56, 60 attached to said spectacle (or dome) plate wherein to assemble said combustor, an assembly fixture is coupled to at least one said swirler; each respective assembly fixture is removably coupled to the spectacle (or dome) plate such that each said respective swirler is aligned with respect to said spectacle plate, wherein each respective assembly fixture includes a plurality of arms that are sized to receive each said respective swirler and an attachment portion that is configured to couple to said spectacle plate; each respective assembly fixture is then uncoupled from each said spectacle plate after each

said swirler is attached to said spectacle plate; a plurality of deflector plates 76 comprising an opening extending therethrough, wherein said plurality of deflector plates to said spectacle plate such that each said deflector plate opening substantially concentrically aligned with each respective said swirler; each said swirler is welded to said spectacle plate prior to uncoupling each respective assembly fixture; said deflector plates comprise a first deflector plate positioned against said spectacle plate; a second deflector plates positioned against said spectacle plate and circumferentially adjacent said first deflector plate; and an alignment fixture removably coupled between said first and second deflector plates to maintain a position of said first and second deflector plates with respect to said spectacle plate; each said deflector plate brazed to said spectacle plate, said each alignment fixture is removed after said first and second deflector plates are brazed to said spectacle plate. Note that the claims are product by process claims and that the structure of the fixture and the steps it performs has been given little patentable weight. It is noted that the patentability of these claims is determined on the basis of the product formed and not the method by which it is produced *Ex parte Junger*, 18 USPQ2d 1796 (BPAI 1991).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

Art Unit: 3746

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Claims 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of Halila (5,353,587), Koshoffer et al (5,239,832) and Thompson et al (6,212,870) in view of Freidauer et al (6,502,400) or its WO equivalent WO 200190652. Halila (5,353,587), Koshoffer et al (5,239,832) and Thompson et al (6,212,870) all teach the resulting structure of the combustor, and their detailed teachings/structure have been set forth above. They do not teach the use of a fixture during assembly. Freidauer et al (col. 1, lines 11-62) and its WO equivalent WO 200190652 teach using a fixture that is coupled and uncoupled and the other assembly steps. It would have been obvious to one of ordinary skill in the art to employ a fixture to perform the coupling and assembly of the combustor/swirler arrangement as the conventional practice in the art for aiding in the assembly.

Response to Arguments

9. Applicant's arguments filed 02/06/2006 have been fully considered but they are not persuasive.

10. Applicant's arguments concerning Freidauer et al are not persuasive as the invention is disclosed in the background of the invention of Freidauer et al. Note that MPEP 2123 sets forth:

I. < PATENTS ARE RELEVANT AS PRIOR ART FOR ALL THEY CONTAIN

Art Unit: 3746

"The use of patents as references is not limited to what the patentees describe as their own inventions or to the problems with which they are concerned. They are part of the literature of the art, relevant for all they contain." *In re Heck*, 699 F.2d 1331, 1332-33, 216 USPQ 1038, 1039 (Fed. Cir. 1983) (quoting *In re Lemelson*, 397 F.2d 1006, 1009, 158 USPQ 275, 277 (CCPA 1968)).

A reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art, including nonpreferred embodiments. *Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989). See also *Celeritas Technologies Ltd. v. Rockwell International Corp.*, 150 F.3d 1354, 1361, 47 USPQ2d 1516, 1522-23 (Fed. Cir. 1998) (The court held that the prior art anticipated the claims even though it taught away from the claimed invention. "The fact that a modem with a single carrier data signal is shown to be less than optimal does not vitiate the fact that it is disclosed.").

>

II. < NONPREFERRED >AND ALTERNATIVE< EMBODIMENTS CONSTITUTE PRIOR ART

Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. *In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971). "A known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use." *In re Gurley*, 27 F.3d 551, 554, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994) (The invention was directed to an epoxy impregnated fiber-reinforced printed circuit material. The applied prior art reference taught a printed circuit material similar to that of the claims but impregnated with polyester-imide resin instead of epoxy. The reference, however, disclosed that epoxy was known for this use, but that epoxy impregnated circuit boards have "relatively acceptable dimensional stability" and "some degree of flexibility," but are inferior to circuit boards impregnated with polyester-imide resins. The court upheld the rejection concluding that applicant's argument that the reference teaches away from using epoxy was insufficient to overcome the rejection since "Gurley asserted no discovery beyond what was known in the art." 27 F.3d at 554, 31 USPQ2d at 1132.). >Furthermore, "[t]he prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed.." *In re Fulton*, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004).<

Furthermore, as for the arms and all the structure of the assembly fixture, these are not given significant patentable weight as they comprise a part of the process by which the apparatus is assembled and not to the product itself. Note that the products in the applied prior art above each teach claimed structure of the claims. Patentability of these claims is determined on the basis of the product formed and not the method by which it is

produced *Ex parte Junger*, 18 USPQ2d 1796 (BPAI 1991). Hence, the burden is on applicant to show an unobvious difference in the product formed by the claims and the applied art. See MPEP 2113.

11. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Freidauer et al teach it is the conventional practice to use an assembly fixture to aid in the assembly process. Hence, the motivation to combine is clear.


Contact Information

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Ted Kim whose telephone number is 571-272-4829. The Examiner can be reached on regular business hours before 5:00 pm, Monday to Thursday and every other Friday.

The fax numbers for the organization where this application is assigned are 571-273-8300 for Regular faxes and 571-273-8300 for After Final faxes.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Thorpe, can be reached at 571-272-4444.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist of Technology Center 3700, whose telephone number is 703-308-0861. General inquiries can also be directed to the Patents Assistance Center whose telephone number is 800-786-9199. Furthermore, a variety of online resources are available at <http://www.uspto.gov/main/patents.htm>

 Ted Kim	Telephone	571-272-4829
Primary Examiner	Fax (Regular)	571-273-8300
March 16, 2006	Fax (After Final)	571-273-8300
Technology Center 3700 Receptionist	Telephone	703-308-0861
Patents Assistance Center	Telephone	800-786-9199